



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

RBD29823-5A
Job Sheet 179746



Part No: RBD29823-5A

Job Qty: 4 ea

Part Name: Tail Rotor Nut Wrench "D" Model (New Design)



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/21/18

Job Tracking No:

Due Date: 7/11/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG RBD29823-5A Rev 3 IPP Rev.A 17.08.30 New issue DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	4 Ea		7/11/18	0.00	0.00	Start Up Waterjet		de 18/07/15
110	Waterjet	4 pcs		7/11/18	0.00	0.33	Waterjet 2 OMAX		de 18/07/15
120	QC	4 pcs		7/11/18	0.00	0.00	QC2 Waterjet-4		de 18/07/15
130	QC	4 pcs		7/11/18	0.00	0.00	QC8-6		38
150	Outsource	4 pcs		7/11/18			ME1001-VC		ATLANOTIC
160	Outsource	4 pcs		7/11/18			GRO002-VC		
190	Packaging	4 pcs		7/11/18	0.00	0.00	Packaging2		AUG 07 2018
200	QC	4 pcs		7/11/18	0.00	0.00	QC6		38
210	Packaging	4 pcs		7/11/18	0.00	0.00	Packaging3-1		9-88
220	QC21-SA	4 Ea		7/11/18	0.00	0.00	QC21		DAS 21 AUG 09 2010

Part Op 110 - 1-Cut as per Dwg Dwg Rev: ~~SA3~~ 3 Prog Rev: ~~SA3~~ 3 2-Deburr if necessary

Descriptions: 130 - Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG.

150 - HEAT TREATING 1--Issue P/O to Metcor; P/O 040019 RC 44-47 2-Bead blast 3- Certificate of Conformity is required ***NOTE*** DROP SHIP TO FINISHER Metcore to ship directly to Groupe Altech

160 - -Issue P/O to Groupe Altech; PO 040019 -Black oxide finish, MIL-C-13924C Class 1 -Certificate of Conformity is required

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M4130NS.188	4130 Sheet .188	.1840 sf (.046 ea)	90-Start up Operation	5078/50

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	M4130NS.188	0	11	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																										
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval																																																								
Description Wo Dart Aerospace Ltd. 1270 Aberdeen Street Hewkesbury, ON K6A 1K7 CANADA TEL.: 1 813 632-5200 Email: sales@dartaero.com www.dartaerospace.com Date: 07/15/18 Container No: S091833 Part: RBD29823-5A Job No: 179746 Serial No/Batch: S091833 Revision: 3 Inspector: _____ Exp Date: _____ Instructions: _____				Completed By																																																								
				Lead hand / Supervisor Approval Verification																																																								
				QC / QA Coordinator Approval																																																								
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left;">Root Cause</th> <th colspan="2"></th> </tr> <tr> <td style="width: 25%;">Environment</td> <td>☐</td> <td style="width: 25%;">No Re-verification</td> <td>☐</td> </tr> <tr> <td>Design</td> <td>☐</td> <td>Operator</td> <td>☐</td> </tr> <tr> <td>Doc/Data</td> <td>☐</td> <td>Offset/Setup</td> <td>☐</td> </tr> <tr> <td>Equip/Tooling</td> <td>☐</td> <td>Supplier</td> <td>☐</td> </tr> <tr> <td>Handling/Pre</td> <td>☐</td> <td>Training</td> <td>☐</td> </tr> <tr> <td>Material</td> <td>☐</td> <td>Use for Testing</td> <td>☐</td> </tr> <tr> <td>Internal Transport</td> <td>☐</td> <td>Poor Information</td> <td>☐</td> </tr> <tr> <td>Tribal Knowledge</td> <td>☐</td> <td>Rushing</td> <td>☐</td> </tr> <tr> <td>LOA</td> <td>☐</td> <td>Product Improvement</td> <td>☐</td> </tr> <tr> <td>Substation</td> <td>☐</td> <td>Process Improvement</td> <td>☐</td> </tr> <tr> <td>Past Expiry Date</td> <td>☐</td> <td>Manufacturing Process</td> <td>☐</td> </tr> <tr> <td>Misidentified</td> <td>☐</td> <td>Past Due</td> <td>☐</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">OTHER : _____</td> </tr> </table>					Root Cause				Environment	☐	No Re-verification	☐	Design	☐	Operator	☐	Doc/Data	☐	Offset/Setup	☐	Equip/Tooling	☐	Supplier	☐	Handling/Pre	☐	Training	☐	Material	☐	Use for Testing	☐	Internal Transport	☐	Poor Information	☐	Tribal Knowledge	☐	Rushing	☐	LOA	☐	Product Improvement	☐	Substation	☐	Process Improvement	☐	Past Expiry Date	☐	Manufacturing Process	☐	Misidentified	☐	Past Due	☐			OTHER : _____	
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INSPECTION SHEET

Measured by:	<i>DL</i>	Checked by:	<i>38</i> <i>9-89</i>	QC Inspector:	
Date:	<i>18/07/15</i>	Date:	<i>JUL 16 2018</i>	Date:	

Rev	Date	Change	Revised by	Approved
A	14.07.31	New Issue	KJ	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

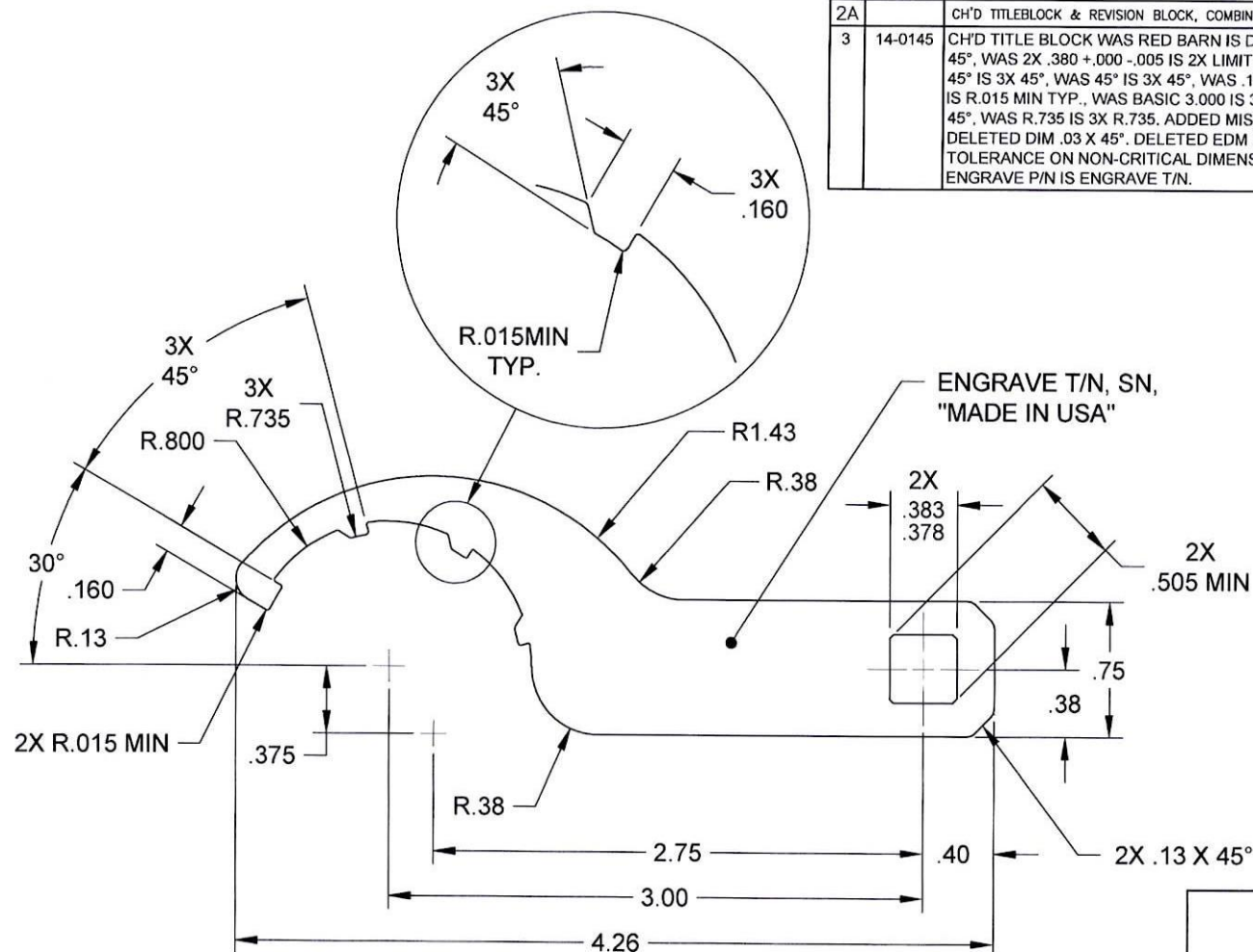
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

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REVISIONS						
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED	
1		UPDATED FOR UNIFORMITY WITH -5 (INCREASED TO R1.425).				
2		CHANGED ALFA TO NUMERICAL REV, CH'D SQUARE SIZE/TOLERANCE.	4/23/09	RJC		
2A		CH'D TITLEBLOCK & REVISION BLOCK, COMBINED EDM FILE WITH DWG.	12/8/09	RJC		RW
3	14-0145	CH'D TITLE BLOCK WAS RED BARN IS DART. CH'D DIMS WAS 1/32 X 45° IS .03 X 45°, WAS 2X .380 +.000 -.005 IS 2X LIMITS .383 TO .378, WAS .188 IS (.188), WAS 45° IS 3X 45°, WAS 45° IS 3X 45°, WAS .160 IS 3X .160, WAS LIMITS R.015 TO .020 IS R.015 MIN TYP., WAS BASIC 3.000 IS 3.00, WAS 2X 1/8 CHAMFER IS 2X .13 X 45°, WAS R.735 IS 3X R.735, ADDED MISSING DIMS 2X .505 MIN, 2X R.015 MIN, .38, DELETED DIM .03 X 45°. DELETED EDM DETAIL & CALLOUT & Ø.250 HOLE. CH'D TOLERANCE ON NON-CRITICAL DIMENSIONS. CH'D ENGRAVE NOTE WAS ENGRAVE P/N IS ENGRAVE T/N.	9/8/14	DJN		RJC



SHOP COPY
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SUBJECT TO AMENDMENT
WITHOUT NOTICE

WORK ORDER
NO. 179746 M15
180622

ASSY QTY	ASSY QTY	B/O	PART #	QTY	DESCRIPTION	MATERIAL	B/O INFORMATION OR SPECIFICATIONS
				1	WRENCH	4130	3/16 x 1-5/8 x 4-1/2

DART AEROSPACE	
TITLE TAIL ROTOR NUT WRENCH ("D" MODEL)	
DWG NO. RBD29823-5A (NEW STYLE)	REV 3
MAT'L 4130	DRAWN BY COLE
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° X ± .1	APPROVED <i>D. Wed</i>
HEAT TREAT FINISH	44-47 Rc
SPEC	BLACK OXIDE
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 X 45° OR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	USED ON MODEL
SCALE 1:1	DATE 7-31-00
	SHEET 1 of 1

Shipping Ticket

Sold To: 1448
DART AEROSPACE LTD.
 1270 ABERDEEN ST

HAWKESBURY ON K6A 1K7

Ship To: 154385
DART AEROSPACE LTD.
 1270 ABERDEEN ST

HAWKESBURY ON K6A 1K7

Page 1 of 1

Purchase Order Number	Packing List No	Customer Job No	Route	Carrier
PO040619				

Quantity	Part No. / Part Name / Part Description	Pounds
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6pcs Material 4130
 Heat trat to 44-47rc with sand blast
 Black oxide, C of C, Prt# RBD298235A, Job# 179746

Container Type	# Of Containers	Cust Cont Id	Container Type	# Of Containers	Cust Cont Id
BOX	1				

NOTICE: OUR LIABILITY IS LIMITED TO OUR INVOICE CHARGES ONLY

Shipped Complete

Quantity Shipped: 6

Pounds Shipped: 2.00

47rc HB

8-1-18

DAS
38
9-88

Order No.: 157190

Shipped Complete

Quantity Shipped: 6.00

Received By:

Date:

Pounds Shipped: 2.00

Sold To: DART AEROSPACE LTD.

Shipped ON: 07/30/2018

Certification

Date: 08/01/2018

Entry Date: 07/30/2018

Page: 1 of 1

To:DART AEROSPACE LTD.
1270 ABERDEEN ST

Purchase Order No.: PO040619

Packing List No.:

HAWKESBURY ON K6A 1K7

Material: 4140

We are pleased to provide you with the following Certificate of Compliance.

Quantity	Part Number / Part Name / Part Description	Pounds
6	6pcs Material 4130 Heat trat to 44-47rc with sand blast Black oxide, C of C, Prt# RBD298235A, Job# 179746	2

Insp. Type	Scale	Minimum	Maximum	Number	Other
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Customer Requirements:

Harden rockwell

Results:Harden ROCKWE 44. 47. 47. TESTED AS PER SAMPLING PLAN
HEAT TREATED TO 47 RC AS PER CUSTOMER REQUEST

STATEMENT OF LIMITED LIABILITY (PLEASE READ CAREFULLY). ALL WORK IS ACCEPTED SUBJECT TO THE FOLLOWING CONDITIONS: It is recognized that even after employing all the scientific methods known to us, hazards still remain in metal treating. THEREFORE, OUR LIABILITY SHALL NOT EXCEED TWICE THE AMOUNT OF OUR CHARGES FOR THE WORK DONE ON ANY MATERIAL (FIRST TO REIMBURSE FOR THE CHARGES AND SECOND TO COMPENSATE IN THE AMOUNT OF THE CHARGES), EXCEPT BY WRITTEN AGREEMENT SIGNED BY THE METAL TREATER. THE CUSTOMER, BY CONTRACTING FOR METAL TREATMENT, AGREES TO ACCEPT THE LIMITS OF LIABILITY AS EXPRESSED IN THIS STATEMENT TO THE EXCLUSION OF ANY AND ALL PROVISIONS AS TO LIABILITY ON THE CUSTOMER'S OWN INVOICES, PURCHASE ORDERS OR OTHER DOCUMENTS. IF THE CUSTOMER DESIRES HIS OWN PROVISIONS AS TO LIABILITY TO REMAIN IN FORCE AND EFFECT, THIS MUST BE AGREED TO IN WRITING, SIGNED BY AN OFFICER OF THE TREATER, IN SUCH EVENT, A DIFFERENT CHARGE FOR OUR SERVICES REFLECTING THE HIGHER RISK TO TREATER, SHALL BE DETERMINED BY THE TREATER AND CUSTOMER. THE TREATER MAKES NO EXPRESS OR IMPLIED WARRANTIES AND SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF THE FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, AS TO THE PERFORMANCE OF CAPABILITIES OF THE MATERIAL AS HEAT TREATED, OR THE HEAT TREATMENT. THE AFOREMENTIONED LIMITATION OF LIABILITY STATED ABOVE IS SPECIFICALLY IN LIEU OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND OF ANY OTHER SUCH OBLIGATION ON THE PART OF THE TREATER. No claim for shortage in weight or count will be entertained unless presented within five (5) working days after receipt of materials by customer. No claim will be allowed for shrinkage, expansion, deformity, or rupture of material in treating or straightening, except by prior written agreement, as above, nor in any case for rupture caused by or occurring during subsequent grinding. Whenever we are given material with detailed instructions as to treatment, our responsibility shall end with the carrying out of those instructions. Failure by a customer to indicate plainly and correctly the kind of material (i.e., proper alloy designation) to be treated, shall cause an extra charge to be made to cover any additional expense incurred as a result thereof, but shall not change the limitation of liability stated above. Customer agrees there will be no liability on the treater in contract for any special, indirect or consequential damages arising whatsoever, including but not limited to personal injury, property damage, loss of profits, loss of production, recall or any other losses, expenses or liabilities allegedly occasioned by the work performed on the part of the treater. It shall be the duty of the customer to inspect the merchandise immediately upon its return, and in any event claims must be reported prior to the time that any further processing, assembling or any other work undertaken. OUR LIABILITY TO OUR CUSTOMERS SHALL CEASE ONCE ANY FURTHER PROCESSING, ASSEMBLING OR ANY OTHER WORK HAS BEEN UNDERTAKEN ON SAID MATERIAL. No agent or representative is authorized to alter the above conditions, except by writing duly signed by an officer of treater.


KEAN SHEPHERD
QUALITY CONTROL
ATLANTIC HEAT TREATING 2001 LTD



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO040619

Supplier: ATL002-VC
Atlantic Heat Treat 2001
401 Frankcom
Ajax
ON
L1S R14 Canada
Phone: 866 257 6395

PO No: PO040619
PO Date: 7/26/18
Due Date: 8/1/18
**Purchase Order
Revision:**
Revision Date:
Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	179746	RBD29823-5A	Tail Rotor Nut Wrench "D" Model (New Design) HEAT TREATING 1--Issue P/O to Atlantic Heat Treat; P/O _____ RC 44-47 2-Bead blast 3- Certificate of Conformity is required 4- Black oxide finish, MIL-C- 13924C Class 1 5. Certificate of conformity is required	Firmed	-	8/1/18	6 pcs	0 pcs	6 pcs	\$35.75/pcs	\$214.50
Grand Total:											\$214.50

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit
www.dartaerospace.com for further explanation.

DAS
38
9-89

Plex 8/1/18 12:40 PM dart.tsimiklis.chrisoula